

What is Claimed:

1. An isolated antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:
 - (a) a protein consisting of amino acid residues -46 to 373 of SEQ ID NO:2;
 - (b) a protein consisting of amino acid residues -23 to 373 of SEQ ID NO:2;
 - (c) a protein consisting of amino acid residues 1 to 373 of SEQ ID NO:2;
 - (d) a protein consisting of amino acid residues 24 to 373 of SEQ ID NO:2;
 - (e) a protein consisting of amino acid residues 85 to 165 of SEQ ID NO:2;
 - (f) a protein consisting of amino acid residues 108 to 121 of SEQ ID NO:2;
 - (g) a protein consisting of a fragment of SEQ ID NO:2, wherein said fragment comprises at least 30 contiguous amino acid residues of SEQ ID NO:2; and
 - (h) a protein consisting of a fragment of SEQ ID NO:2, wherein said fragment comprises at least 50 contiguous amino acid residues of SEQ ID NO:2.
2. The antibody or fragment thereof of claim 1 that specifically binds protein (a).
3. The antibody or fragment thereof of claim 1 that specifically binds protein (b).
4. The antibody or fragment thereof of claim 1 that specifically binds protein (c).
5. The antibody or fragment thereof of claim 1 that specifically binds protein (d).
6. The antibody or fragment thereof of claim 1 that specifically binds protein (e).
7. The antibody or fragment thereof of claim 1 that specifically binds protein (f).
8. The antibody or fragment thereof of claim 1 that specifically binds protein (g).
9. The antibody or fragment thereof of claim 1 that specifically binds protein (h).
10. The antibody or fragment thereof of claim 2 that specifically binds protein (b).

11. The antibody or fragment thereof of claim 6 wherein said protein bound by said antibody or fragment thereof is glycosylated.

12. The antibody or fragment thereof of claim 6 which is a polyclonal antibody.

13. The antibody or fragment thereof of claim 6 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a single chain antibody; and
- (c) a Fab fragment.

14. The antibody or fragment thereof of claim 6 which is labeled.

15. The antibody or fragment thereof of claim 14 wherein the label is selected from the group consisting of:

- (a) an enzyme;
- (b) a fluorescent label;
- (c) a luminescent label; and
- (d) a bioluminescent label.

16. The antibody or fragment thereof of claim 6 wherein said antibody specifically binds to said protein in a Western blot.

17. The antibody or fragment thereof of claim 6 wherein said antibody specifically binds to said protein in an ELISA.

18. An isolated cell that produces the antibody or fragment thereof of claim 6.

19. A hybridoma that produces the antibody or fragment thereof of claim 6.

20. A method of detecting VEGF-2 protein in the biological sample comprising:

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- (a) contacting the biological sample with the antibody or fragment thereof of claim 6; and
- (b) detecting the VEGF-2 protein in the biological sample.

21. The method of claim 20 wherein the antibody or fragment thereof is a polyclonal antibody.

22. An isolated antibody or fragment thereof obtained from an animal that has been immunized with a protein selected from the group consisting of:

- (a) a protein comprising the amino acid sequence of amino acid residues -46 to 373 of SEQ ID NO:2;
- (b) a protein comprising the amino acid sequence of amino acid residues -23 to 373 of SEQ ID NO:2;
- (c) a protein comprising the amino acid sequence of amino acid residues 1 to 373 of SEQ ID NO:2;
- (d) a protein comprising the amino acid sequence of amino acid residues 24 to 373 of SEQ ID NO:2;
- (e) a protein comprising the amino acid sequence of amino acid residues 85 to 165 of SEQ ID NO:2;
- (f) a protein comprising the amino acid sequence of amino acid residues 108 to 121 of SEQ ID NO:2;
- (g) a protein comprising the amino acid sequence of at least 30 contiguous amino acid residues of SEQ ID NO:2; and
- (h) a protein comprising the amino acid sequence of at least 50 contiguous amino acid residues of SEQ ID NO:2;

wherein said antibody or fragment thereof specifically binds to said amino acid sequence.

23. The antibody or fragment thereof of claim 22 obtained from an animal immunized with protein (a).

24. The antibody or fragment thereof of claim 22 obtained from an animal immunized with protein (b).

25. The antibody or fragment thereof of claim 22 obtained from an animal immunized with protein (c).

26. The antibody or fragment thereof of claim 22 obtained from an animal immunized with protein (d).

27. The antibody or fragment thereof of claim 22 obtained from an animal immunized with protein (e).

28. The antibody or fragment thereof of claim 22 obtained from an animal immunized with protein (f).

29. The antibody or fragment thereof of claim 22 obtained from an animal immunized with protein (g).

30. The antibody or fragment thereof of claim 22 obtained from an animal immunized with protein (h).

31. The antibody or fragment thereof of claim 22 which is a monoclonal antibody.

32. The antibody or fragment thereof of claim 22 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a polyclonal antibody;
- (c) a single chain antibody; and
- (d) a Fab fragment.

33. An isolated monoclonal antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of amino acid residues -46 to 373 of SEQ ID NO:2;
- (b) a protein consisting of amino acid residues -23 to 373 of SEQ ID NO:2;
- (c) a protein consisting of amino acid residues 1 to 373 of SEQ ID NO:2;

- (d) a protein consisting of amino acid residues 24 to 373 of SEQ ID NO:2;
(e) a protein consisting of amino acid residues 85 to 165 of SEQ ID NO:2;
(f) a protein consisting of amino acid residues 108 to 121 of SEQ ID NO:2;
(g) a protein consisting of a fragment of SEQ ID NO:2, wherein said fragment comprises at least 30 contiguous amino acid residues of SEQ ID NO:2; and
(h) a protein consisting of a fragment of SEQ ID NO:2, wherein said fragment comprises at least 50 contiguous amino acid residues of SEQ ID NO:2.

34. The antibody or fragment thereof of claim 33 that specifically binds protein (a).
35. The antibody or fragment thereof of claim 33 that specifically binds protein (b).
36. The antibody or fragment thereof of claim 33 that specifically binds protein (c).
37. The antibody or fragment thereof of claim 33 that specifically binds protein (d).
38. The antibody or fragment thereof of claim 33 that specifically binds protein (e).
39. The antibody or fragment thereof of claim 33 that specifically binds protein (f).
40. The antibody or fragment thereof of claim 33 that specifically binds protein (g).
41. The antibody or fragment thereof of claim 33 that specifically binds protein (h).
- Para 43* 42. The antibody or fragment thereof of claim 33 that specifically binds protein (b).
43. The antibody or fragment thereof of claim 38 wherein said protein bound by said antibody or fragment thereof is glycosylated.
44. The antibody or fragment thereof of claim 38 which is selected from the group consisting of:
(a) a chimeric antibody;

- (b) a single chain antibody; and
- (c) a Fab fragment.

45. The antibody or fragment thereof of claim 38 which is labeled.

46. The antibody of claim 45 wherein the label is selected from the group consisting of:

- (a) an enzyme;
- (b) a fluorescent label;
- (c) a luminescent label; and
- (d) a bioluminescent label.

47. The antibody or fragment thereof of claim 38 wherein said antibody specifically binds to said protein in a Western blot.

48. The antibody or fragment thereof of claim 38 wherein said antibody specifically binds to said protein in an ELISA.

49. An isolated cell that produces the antibody or fragment thereof of claim 38.

50. A hybridoma that produces the antibody or fragment thereof of claim 38.

51. A method of detecting VEGF-2 protein in the biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 38; and
- (b) detecting the VEGF-2 protein in the biological sample.

52. An isolated antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149;
- (b) a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149;

- (c) a protein consisting of a fragment of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149, wherein said fragment comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149; and
- (d) a protein consisting of a fragment of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149, wherein said fragment comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149.

53. The antibody or fragment thereof of claim 52 that specifically binds protein (a).
54. The antibody or fragment thereof of claim 52 that specifically binds protein (b).
55. The antibody or fragment thereof of claim 52 that specifically binds protein (c).
56. The antibody or fragment thereof of claim 52 that specifically binds protein (d).
57. The antibody or fragment thereof of claim 53 that specifically binds protein (b).
58. The antibody or fragment thereof of claim 54 wherein said protein bound by said antibody or fragment thereof is glycosylated.
59. The antibody or fragment thereof of claim 54 which is a polyclonal antibody.
60. The antibody or fragment thereof of claim 54 which is selected from the group consisting of:
- (a) a chimeric antibody;
 - (b) a single chain antibody; and
 - (c) a Fab fragment.
61. The antibody or fragment thereof of claim 54 which is labeled.

62. The antibody of claim 61 wherein the label is selected from the group consisting of:

- (a) an enzyme;
- (b) a fluorescent label;
- (c) a luminescent label; and
- (d) a bioluminescent label.

63. The antibody or fragment thereof of claim 54, wherein said antibody specifically binds to said protein in a Western blot.

64. The antibody or fragment thereof of claim 54 wherein said antibody specifically binds to said protein in an ELISA.

65. An isolated cell that produces the antibody or fragment thereof of claim 54.

66. A hybridoma that produces the antibody or fragment thereof of claim 54.

67. A method of detecting VEGF-2 protein in the biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 54; and
- (b) detecting the VEGF-2 protein in the biological sample.

68. The method of claim 67 wherein the antibody or fragment thereof is a polyclonal antibody.

69. An isolated antibody or fragment thereof obtained from an animal that has been immunized with a protein selected from the group consisting of:

- (a) a protein comprising the amino acid sequence of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149;
- (b) a protein comprising the amino acid sequence of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149;

- (c) a protein comprising the amino acid sequence of at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149; and
- (d) a protein comprising the amino acid sequence of at least 50 contiguous amino acid residues the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149;

wherein said antibody or fragment thereof specifically binds to said amino acid sequence.

- 70. The antibody or fragment thereof of claim 69 obtained from an animal immunized with protein (a).
- 71. The antibody or fragment thereof of claim 69 obtained from an animal immunized with protein (b).
- 72. The antibody or fragment thereof of claim 69 obtained from an animal immunized with protein (c).
- 73. The antibody or fragment thereof of claim 69 obtained from an animal immunized with protein (d).
- 74. The antibody or fragment thereof of claim 69 which is a monoclonal antibody.
- 75. The antibody or fragment thereof of claim 69 which is selected from the group consisting of:
 - (a) a chimeric antibody;
 - (b) a polyclonal antibody;
 - (c) a single chain antibody; and
 - (d) a Fab fragment.
- 76. An isolated monoclonal antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149;
- (b) a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149;
- (c) a protein consisting of a fragment of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149, wherein said fragment comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149; and
- (d) a protein consisting of a fragment of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149, wherein said fragment comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97149.

77. The antibody or fragment thereof of claim 76 that specifically binds protein (a).

78. The antibody or fragment thereof of claim 76 that specifically binds protein (b).

79. The antibody or fragment thereof of claim 76 that specifically binds protein (c).

80. The antibody or fragment thereof of claim 76 that specifically binds protein (d).

81. The antibody or fragment thereof of claim 77 that specifically binds protein (b).

82. The antibody or fragment thereof of claim 78 wherein said protein bound by said antibody or fragment thereof is glycosylated.

83. The antibody or fragment thereof of claim 78 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a single chain antibody; and
- (c) a Fab fragment.

84. The antibody or fragment thereof of claim 78 which is labeled.

85. The antibody of claim 84 wherein the label is selected from the group consisting of:

- Ant 68*
- (a) an enzyme;
 - (b) a fluorescent label;
 - (c) a luminescent label; and
 - (d) a bioluminescent label.

86. The antibody or fragment thereof of claim 78 wherein said antibody specifically binds to said protein in a Western blot.

87. The antibody or fragment thereof of claim 78 wherein said antibody specifically binds to said protein in an ELISA.

88. An isolated cell that produces the antibody or fragment thereof of claim 78.

89. A hybridoma that produces the antibody or fragment thereof of claim 78.

90. A method of detecting VEGF-2 protein in the biological sample comprising:

- Ant 69*
- (a) contacting the biological sample with the antibody or fragment thereof of claim 78; and
 - (b) detecting the VEGF-2 protein in the biological sample.

91. A method of inhibiting angiogenesis in a patient comprising administering to the patient the antibody of any one of claims 1, 6, 22, 33, 38, 52, 54, 69, 76, or 78.

92. A method of inhibiting neovascularization in a patient comprising administering to the patient the antibody of claim 1, 6, 22, 33, 38, 52, 54, 69, 76, or 78.

93. A method of inhibiting a tumor in a patient comprising administering to the patient the antibody of claim 1, 6, 22, 33, 38, 52, 54, 69, 76, or 78.

94. A method of inhibiting diabetic retinopathy in a patient comprising administering to the patient the antibody of claim 1, 6, 22, 33, 38, 52, 54, 69, 76, or 78.

95. A method of inhibiting psoriasis in a patient comprising administering to the patient the antibody of claim 1, 6, 22, 33, 38, 52, 54, 69, 76, or 78.

96. A method of inhibiting rheumatoid arthritis in a patient comprising administering to the patient the antibody of claim 1, 6, 22, 33, 38, 52, 54, 69, 76, or 78.

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